

# 2006 Freshwater Emergent Noxious and Quarantine Weed Water Quality Group Monitoring Results

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Cover photo: Waterfall in the Washougal River System provided by Skamania Noxious Weed Control Board Staff

Extreme care was used during the compilation of the maps in this report to ensure accuracy. However, due to changes in data and the need to rely on outside sources of information, the Department of Agriculture cannot accept responsibility for errors or omissions, and, therefore there are no warranties which accompany this material. Original data were obtained from the Washington State Department of Ecology and Washington State Department of Natural Resources.

## Introduction

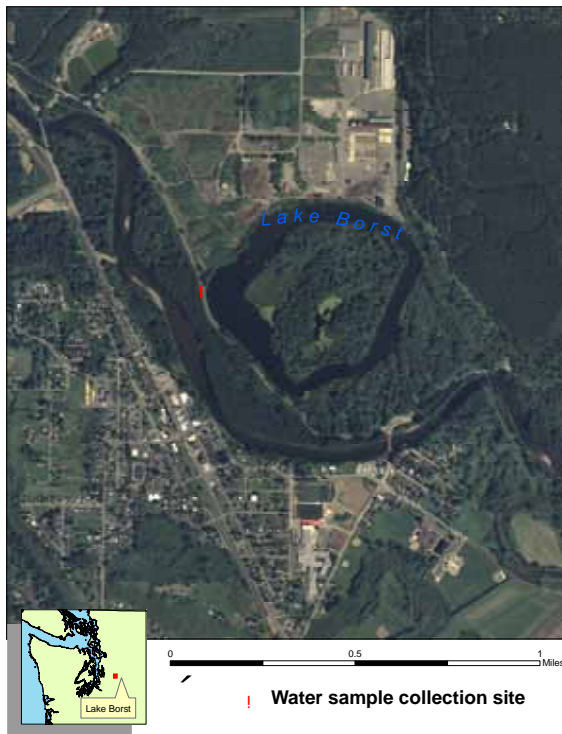
The purpose of this monitoring program is to record any residual concentrations of the aquatic herbicides that are used to treat various freshwater emergent noxious and quarantine weed species in or near the waters of Washington State.

Herbicide applications that were monitored occurred between August 30, 2006 and September 27, 2006. All treatments were conducted by applicators licensed by the Washington State Department of Agriculture. Water was sampled at sites in King, Clallam, and Skamania counties before and after the application of herbicides that contained either glyphosate or triclopyr. Freshwater emergent noxious weeds were the targets of these applications. Hand-held injection equipment or pressurized sprayers were used for these applications. All of the sites were located near flowing water along rivers and creeks, or along the shoreline of lakes.

For more information on sampling procedures and protocols see the *2006 Annual Group Monitoring Plan for Herbicide Application to Freshwater Emergent Noxious and Quarantine Weeds performed under the Noxious Weed National Pollutant Discharge Elimination System (NPDES) Permit*.

## Sample Locations

### ***Lake Borst purple loosestrife treatment***

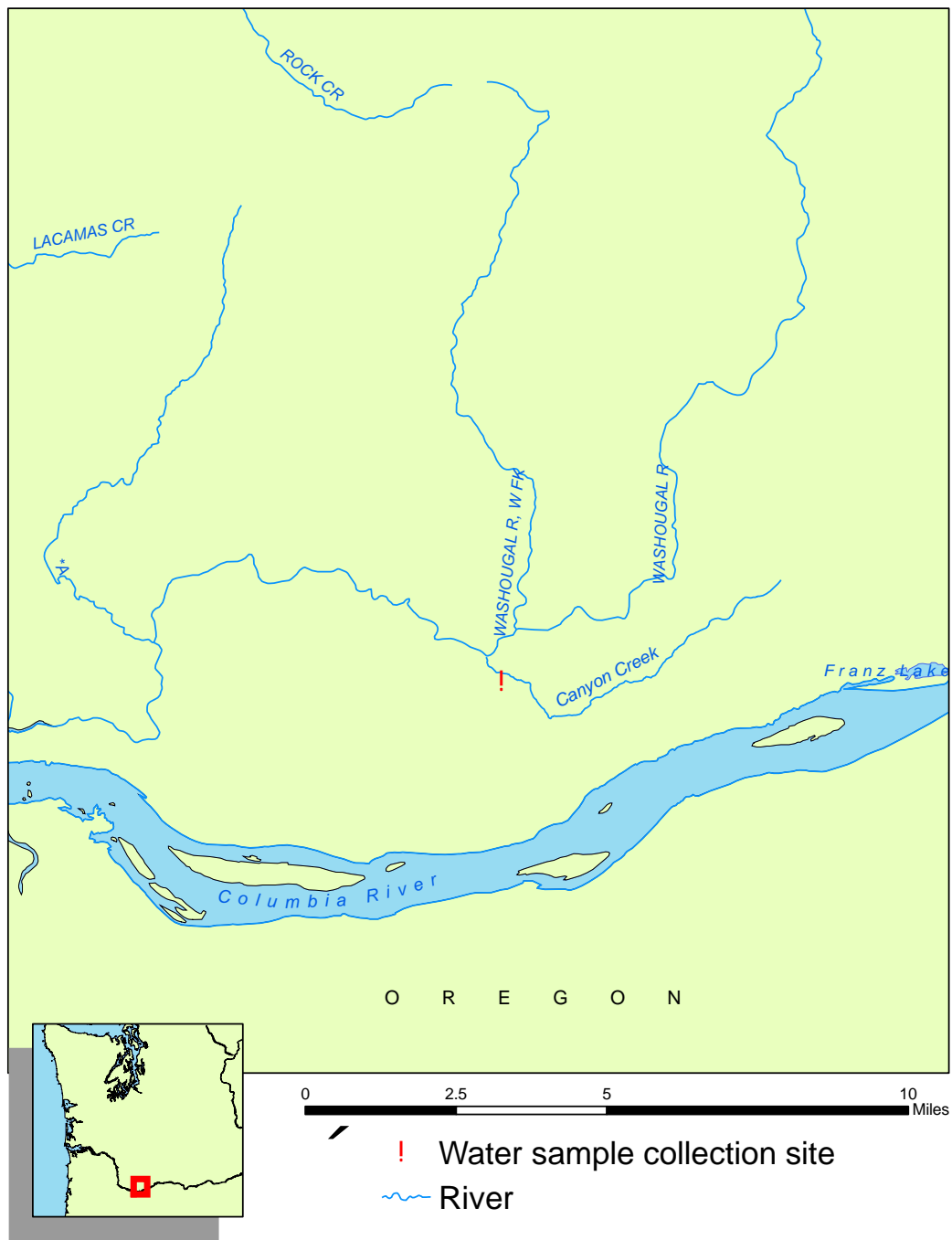


**Figure 1. Location of the water sample collection site on Lake Borst, King County, Washington.**

The Lake Borst purple loosestrife treatment site was located in King County, Washington, near the town of Snoqualmie. This lake is privately owned, and supports a small recreational fishery. Purple loosestrife was scattered along the shoreline of the lake. **Figure 1** shows the location of Lake Borst and the water-sample collection site.

### ***Canyon Creek knotweed injection***

Canyon Creek is located in Skamania County, Washington (**Figure 2**). It is a small tributary to the Washougal River that supports populations of resident and anadromous fishes. Invasive knotweeds have altered the riparian ecosystem by dominating the understory vegetation. Knotweed populations have been treated in previous years.



**Figure 2.** Map depicting the location of the water sample collection site on Canyon Creek, Skamania County, Washington.

## ***Big River knotweed injection***

The Big River is located in Clallam County, Washington, and runs tributary to Lake Ozette. The Big River is a relatively small drainage that is highly-impacted by invasive knotweeds. The Clallam County Noxious Weed Control Board has conducted knotweed treatments in the Big River corridor for the past three years. **Figure 3** shows the location of the water-sample collection site in the Big River.



**Figure 3.** Map depicting the location of the water sample collection site on the Big River, Clallam County, Washington.

## Results

A laboratory accredited by the Washington State Department of Ecology was used for the analysis of all samples. In 2006, Anatek Labs, Inc., Moscow, Idaho was used for analysis of the monitoring samples. Analytical Method Number EPA 547 was used to determine and quantify the presence of glyphosate, and Analytical Method Number EPA 515.1 was used to determine and quantify the presence of triclopyr.

The sampling information and resultant laboratory results are reported below. All detectable levels of herbicide are reported in micrograms per liter (ug/L). One microgram per liter equals one part per billion (ppb). “ND” indicates that herbicide residue was not detected above the listed practical quantitation limit (PQL).

### ***Lake Borst purple loosestrife treatment***

On August 30, 2006, employees of the Wildlands Pest Management Company used pressurized spray equipment to apply a spray mixture that contained 2% Ecotriclopyr. The active ingredient of the herbicide was triclopyr. The spray mixture was applied to purple loosestrife plants along the shoreline of Lake Borst in King County, Washington. There was measurable precipitation after the treatment was completed.

***Table 1. Results of the analysis for the presence of triclopyr in three samples taken at the Lake Borst treatment site***

Sample Time	Results (ppb)
0.1 hour before treatment	ND
1 hour after treatment	27.4
24 hours after treatment	0.8

**Table 1** contains the results of the water sample analysis for the presence of triclopyr in three water samples. The practical quantitation limit of the analysis was 0.5 parts per billion. Triclopyr was not detected in the pre-treatment sample. The water sample that was collected one hour after treatment contained triclopyr at a concentration of 27.4 parts per billion. Analysis of the sample taken 24 hours after treatment showed a decrease in the triclopyr concentration to 0.8 parts per billion.

### ***Canyon Creek knotweed injection***

On September 11, 2006, Skamania County Noxious Weed Control Board staff used a hand-held injection tool to deliver undiluted herbicide into the stems of invasive knotweed. The active ingredient in the herbicide was glyphosate. The treatment site was near Canyon Creek, a tributary to the Washougal River in Skamania County, Washington. There was no rain during, or after treatment. **Figure 4** is a photograph of one patch of knotweed at the treatment site, and is representative of additional patches that were treated. Staff from WSDA collected the water samples.





**Figure 4.** *Photograph of one patch of knotweed located at the Canyon Creek knotweed-treatment site.*

The infestation totaled approximately 0.5 acres, and was located on a gravel bar within the bankfull channel of the river. The invasive knotweed was growing up to the wetted channel in gravel substrate.

**Table 2.** *Results of the analysis for the presence of glyphosate in three samples taken at the Canyon Creek treatment site*

<b>Sample Time</b>	<b>Results (ppb)</b>
0.1 hour before treatment	ND
1 hour after treatment	ND
24 hours after treatment	ND

**Table 2** contains the results of the water sample analysis for the presence of glyphosate in three water samples. The practical quantitation limit of the analysis was 10 parts per billion. Glyphosate was not detected in any of the three samples.

### ***Big River knotweed injection***

On September 27, 2006, Clallam County Noxious Weed Control Board staff used a hand-held injection tool to deliver undiluted herbicide into the stems of invasive knotweed. The active ingredient in the herbicide was glyphosate. The treatment site was near the Big River, a tributary to Lake Ozette, and was located in Clallam County, Washington. There was no rain during, or

after treatment. **Figure 5** is a photograph of the treatment site. Staff from WSDA collected the water samples.



**Figure 5.** *Photograph of the Big River knotweed-treatment site*

The knotweed was growing within the bankfull channel in sandy sediment approximately 2 feet from the wetted channel. The area occupied by the invasive knotweed was approximately 0.3 acres.

**Table 3.** *Results of the analysis for the presence of glyphosate in three samples taken at the Big River treatment site*

Sample Time	Results (ppb)
0.1 hour before treatment	ND
1 hour after treatment	ND
24 hours after treatment	ND

**Table 3** contains the results of the water sample analysis for the presence of glyphosate. The samples were analyzed one day beyond the holding-time specified in the analytical method. The practical quantitation limit of the analysis was 10 parts per billion. Glyphosate was not detected in any of the three samples.



## Signatory Page

I certify under penalty of law, that this document and all attachments were prepared under my direction, or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiries of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

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